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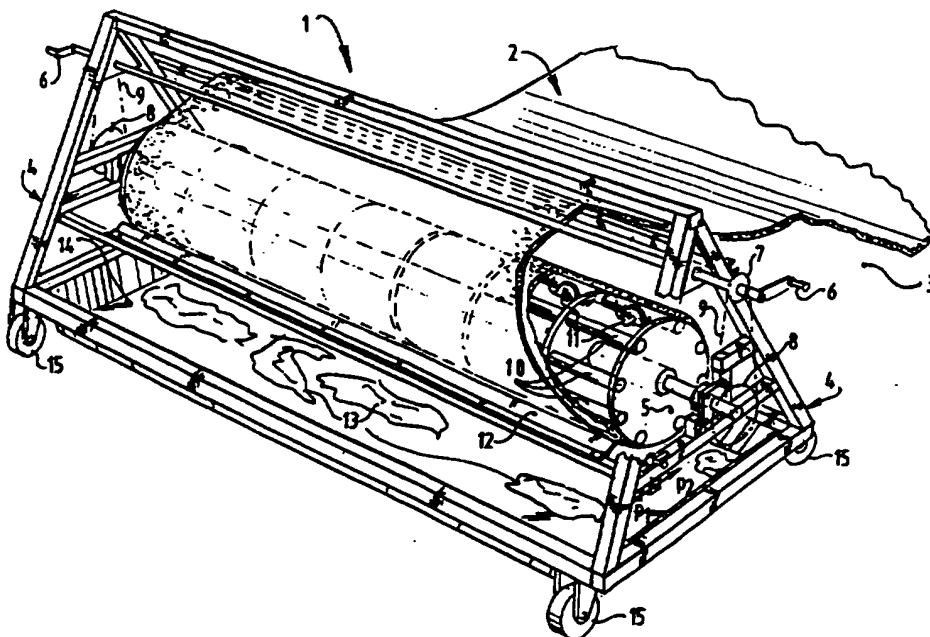
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(54) Title: HOLDER FOR A LIQUID-TIGHT PLATFORM AND LIQUID-TIGHT PLATFORM



(57) Abstract

The invention relates to a holder (1) for a liquid-tight platform (2) for use in collecting liquid, comprising: a frame (4); a drum (5) mounted rotatably on the frame (4) and provided with coupling means (11) for gripping the liquid-tight platform (2), and a drive connected to the drum (5) for causing the drum (5) to rotate. The invention also relates to an improved liquid-tight platform (2) for use with this holder (1).

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**HOLDER FOR A LIQUID-TIGHT PLATFORM
AND LIQUID-TIGHT PLATFORM**

The invention relates to a holder for a liquid-tight platform for use in collecting liquid. The invention also relates to an improved liquid-tight platform for use with this holder.

5 When cleaning operations are carried out on large objects such as buildings, trucks, street furniture and so on, the dirt coming from the object for cleaning generally falls onto the ground with the used washing water. In order to enable a controlled discharge of
10 washing water and dirt a liquid-tight platform has been developed which is described in the Netherlands patent application NL-1001052. The subject-matter as described in this application is fully incorporated by reference in the present patent application. Said patent application
15 does not provide a solution for storage and transport of the liquid-tight platform.

20 The object of the present invention is to provide a holder for storage and transport of a liquid-tight platform in addition to an improved liquid-tight platform adapted for co-action with this holder.

25 The invention provides for this purpose a holder as according to 1. Such a holder is simple to manufacture and makes it possible to roll up respectively roll out a liquid-tight platform with the minimum of work.

30 The length of the drum is preferably smaller than the width of the liquid-tight platform. When a liquid-tight platform is rolled onto such a drum the edges of the liquid-tight platform will project over the edge of the drum. Since the edges of the liquid-tight platform are usually provided with standing edge parts, this has the advantage that the liquid-tight platform can be rolled more tightly onto the drum and that the standing edge

parts of the liquid-tight platform are pressed together less when rolled up.

In another preferred embodiment the holder is preferably provided with a scraper for scraping residues from the upper side of the liquid-tight platform during rolling up of the platform. A collecting device is preferably arranged under this scraper for collecting the scraped-off residue. It is also possible to provide the holder with a second scraper for scraping the underside of the liquid-tight platform during rolling up of the platform. During use of the liquid-tight platform residue will collect on the liquid-tight platform. If the holder is now provided with at least one scraper the liquid-tight platform can be cleaned simultaneously with being rolled up.

The frame is preferably provided on the underside with wheels, the shafts of which lie perpendicularly of the lengthwise direction of the platform during rolling up or rolling out of the platform. That is, during rolling up or rolling out the shaft direction of the wheels runs substantially parallel to the rotation shaft of the drum. This can be realized by wheels, the shaft direction of which is fixed as described above, or by pivotable wheels which will be urged into the described position during rolling up or rolling out of the platform. The advantage of wheels with the described shaft direction is that during rolling up or rolling out of the liquid-tight platform the holder can be displaced in lengthwise direction relative to the liquid-tight platform. It thus becomes possible for instance to move the holder through "beneath" the liquid-tight platform when the liquid-tight platform is being rolled up. This prevents the liquid-tight platform being pulled over the ground and thus damaging itself and/or damaging the ground surface.

In yet another preferred embodiment the holder is at least provided with one rotatable guide roller, close to which guide roller a scraper is preferably arranged. With these steps the position of the scraper in the holder can

be fixed subject to the thickness of the liquid-tight platform to be scraped.

In yet another preferred embodiment the holder is provided close to the scraper with wetting means for wetting a side of a liquid-tight platform for scraping. Hardened portions for instance can be loosened more easily from the liquid-tight platform by wetting the liquid-tight platform before it is scraped. Another advantage is that the scraped-off residue is easier to discharge.

10 The holder can also be provided with a pump device with a feed conduit and a discharge conduit, for instance to pump empty a liquid-tight platform. The holder can also be provided with a filter for at least partially removing solid portions from the pumped-up liquid. Such a filter
15 can consist for instance of a sludge separator with a reservoir. For removal of liquid from the liquid-tight platform it can be provided with a low-lying opening onto which a filter connects. Another possibility consists of pumping out the liquid-tight platform and discharging the
20 pumped-out liquid at a drainage point. In this latter variant the flexibility of the system is greater since the location of the drainage point relative to the liquid-tight platform is less relevant. Use can of course be made of a separate pumping device but in order to simplify transport and operation it is advantageous to integrate the pumping device with the holder. Since the liquid pumped off a liquid-tight platform may generally not be discharged uncleaned at a drainage point the holder is preferably provided with the filter device for cleaning
25 the liquid before it is discharged. An important requirement of liquid for discharging generally relates to the maximum quantity of solids situated in the liquid. In order to reduce the quantity of solids in the liquid the holder can be provided with a sludge separator.

35 When the holder is provided with a sludge separator a reservoir in which liquid is situated is present on the holder. This liquid can be used for wetting the liquid-tight platform before it is scraped. The scraped-off res-

idue is then fed back to the reservoir through an outlet specially arranged on the holder for this purpose so that the solids will settle out of the residue and the liquid component can be discharged or can be re-used to make a liquid-tight platform wet.

The invention also comprises a liquid-tight platform as described in claim 15. The platform is preferably provided at a distance from the coupling means with means for anchoring the platform to the ground. Such a platform can be releasably coupled to the holder in relatively simple manner. The coupling means for anchoring purposes reduce the danger of unwanted movement of the liquid-tight platform.

The invention will be further elucidated with reference to the non-limitative embodiments shown in the annexed figures. Herein:

figure 1 shows a perspective view of a holder according to the invention, and

figure 2 shows a perspective view of an alternative holder according to the invention.

Figure 1 shows a holder 1 to which a part of a liquid-tight platform 2 is fixed, while another part of the liquid-tight platform is still lying on ground 3. Holder 1 comprises a frame 4 in which a drum 5 is rotatably suspended. Drum 5 can be moved by means of a manually operated handle 6 coupled to drum 5 with interposing of toothed wheels 7, 8 and chains 9.

It will be apparent that the size of toothed wheels 7, 8 determines the transmission ratio from handle 6 to drum 5. The outer periphery of drum 5 is substantially defined by rods 10 which are placed in lengthwise direction and on one of which are arranged fastening hooks 11. Fastening hooks 11 co-act with recesses in the liquid-tight platform which are not clearly visible in this figure. It is advisable to strengthen the recesses in liquid-tight platform 2 by for instance inserting rings. It should also be noted that the recesses in liquid-tight platform 2 are preferably arranged such that they are located out-

side the standing edge parts of platform 2. This prevents washing water with possible contaminants being able to leak through the recesses in liquid-tight platform 2. Since the longitudinal sides of liquid-tight platform 2 are preferably provided with a raised edge part to prevent collected washing water flowing away, in the preferred embodiment the length of the drum 5 is smaller than the width of a liquid-tight platform 2, whereby more space is created for the standing edges when platform 2 is rolled up onto drum 5.

When a liquid-tight platform 2 is rolled up a scraper 12 fixed to the frame 4 will scrape from the upper side of liquid-tight platform 2 the residues 13 remaining on liquid-tight platform 2. The residues 13 scraped off in this manner are collected in a collecting container 14 since the scraped-off residues will normally be contaminated. As the diameter of the drum 5 with liquid-tight platform 2 rolled up thereon increases, the scraper 12 can slide such that it is held in constant contact with the surface of liquid-tight platform 2. For this purpose the scraper 12 is mounted for sliding in accordance with arrows P1, P2. It is recommended herein to urge scraper 12 under bias against the surface of liquid-tight platform 2. Wheels 15 are placed on the underside of frame 4, whereby holder 1 can be pulled under platform 2 during rolling up of the liquid-tight platform 2. It is however advisable for this purpose that liquid-tight platform 2 can be anchored to the ground 3 at a distance from the side in which the openings are arranged. This can take place for instance by means of anchor pins, but it is also possible to provide liquid-tight platform 2 with one or more hooks which can grip onto the edge of a drain into which the liquid-tight platform 2 drains. The advantage of pulling holder 1 under liquid-tight platform 2 is that the washing water remaining on liquid-tight platform 2 is guided to the drainage point. The amount of leftover washing water which is carried along during rolling

up of liquid-tight platform 2 and enters holder 1 is hereby minimized.

Figure 2 shows a device 18 wherein the rotatable drum 5 is arranged in frame 4. The device 18 is provided with a guide roller 19 over which the liquid-tight platform 2 is carried. The liquid-tight platform 2 is shown only schematically in this figure. Close to guide roller 19 is disposed a scraper 20 for scraping the liquid-tight platform at the position where it is carried over guide roller 19. The advantage hereof is that the arrangement of scraper 20 can be more or less stationary. Scraper 20 can be embodied as a knife-like construction from a form-retaining or more flexible material depending on the choice of material for the liquid-tight platform 2 and the use of the liquid-tight platform 2. A nozzle 21 is placed above scraper 20 for supplying liquid to liquid-tight platform 2 prior to this being scraped by scraper 20. In this manner the residue 13 situated on liquid-tight platform 2 can already be loosened before the scraping operation commences. A feed conduit 22 for supplying liquid for spraying connects to nozzle 21. The nozzle 21 can of course also be embodied otherwise than as shown in this drawing. For instance a plurality of separate nozzles can for instance be envisaged here.

Holder 18 is also provided with a pump 23 with which for instance the feed conduit 22 example can be supplied but which can also be employed to empty the liquid-tight platform 2 located on the ground 3. The collecting container 14 which is situated at the bottom of holder 18 is provided with a gutter 24 into which the scraped-off residue 13 flows. In the gutter 24 can be placed a cover ring 25 into which is inserted a suction conduit 26 which is connected to pump 23. A liquid component coming from the residue can thus be sucked out by suction conduit 26 and fed to nozzle 21 for wetting the liquid-tight platform 2. The gutter construction 24 can also be embodied differently in the form of a more closed reservoir construction in which for instance partitions are arranged

in order to cause the solids situated in the residue 13 to settle. The pump 23 can also be provided with an additional suction conduit, not shown in this figure, or with only one suction conduit for pumping up the liquid from the liquid-tight platform 2, and this pumped-up liquid can for instance be fed to gutter 24 or a differently embodied reservoir, whereafter a component can be discharged via an outlet 27. It is herein also possible to pump out a liquid component by means of a suction conduit 27 and to discharge this directly at a drainage point. The advantage here is that the discharged liquid will contain relatively few solids. It is also possible to incorporate an extra filter 28 for removing for instance oil remnants and so on.

CLAIMS

1. Holder for a liquid-tight platform for use in collecting liquid, comprising:

- a frame;
- a drum mounted rotatably on the frame and provided with coupling means for gripping the liquid-tight platform, and
- a drive connected to the drum for causing the drum to rotate.

2. Holder as claimed in claim 1, wherein the length of the drum is smaller than the width of the liquid-tight platform.

3. Holder as claimed in claim 1 or 2, wherein the holder is provided with a scraper for scraping residues from the upper side of the liquid-tight platform during rolling up of the platform.

4. Holder as claimed in claim 3, wherein a collecting device is arranged under the scraper for collecting scraped-off residue.

5. Holder as claimed in any of the foregoing claims, wherein the holder comprises a second scraper for scraping the underside of the liquid-tight platform during rolling up of the platform.

6. Holder as claimed in any of the foregoing claims, wherein the frame is provided on the underside with wheels, the shafts of which lie perpendicularly of the lengthwise direction of the platform during rolling up of the platform.

7. Holder as claimed in any of the foregoing claims, wherein in the frame is received at least one rotatable guide roller for the liquid-tight platform, the rotation shaft of which roller runs substantially parallel to the rotation shaft of the drum.

8. Holder as claimed in claim 7, wherein the scraper is disposed close to the rotatable guide roller.

9. Holder as claimed in any of the claims 3-8, wherein the holder is provided close to the scraper with wetting means for wetting a side of a liquid-tight platform for scraping.

5 10. Holder as claimed in any of the foregoing claims, wherein the holder is provided with a pump device with a feed conduit and a discharge conduit, for instance for pumping empty a liquid-tight platform.

10 11. Holder as claimed in claim 10, wherein the holder is provided with a filter for at least partially removing solids from the pumped-up liquid.

12. Holder as claimed in claim 11, wherein the filter is formed at least by a sludge separator provided with a reservoir.

15 13. Holder as claimed in claim 12, wherein the wetting means are connected to the reservoir by a liquid feed.

14. Holder as claimed in claim 12 or 13, wherein the residue scraped off by the scraper is fed to the reservoir through an outlet arranged in the holder.

20 15. Liquid-tight platform for use with a holder as claimed in any of the foregoing claims, wherein the platform is provided with coupling means for co-action with the coupling means of the drum.

25 16. A liquid-tight platform as claimed in claim 15, wherein the platform is provided at a distance from the coupling means with means for anchoring the platform to the ground.

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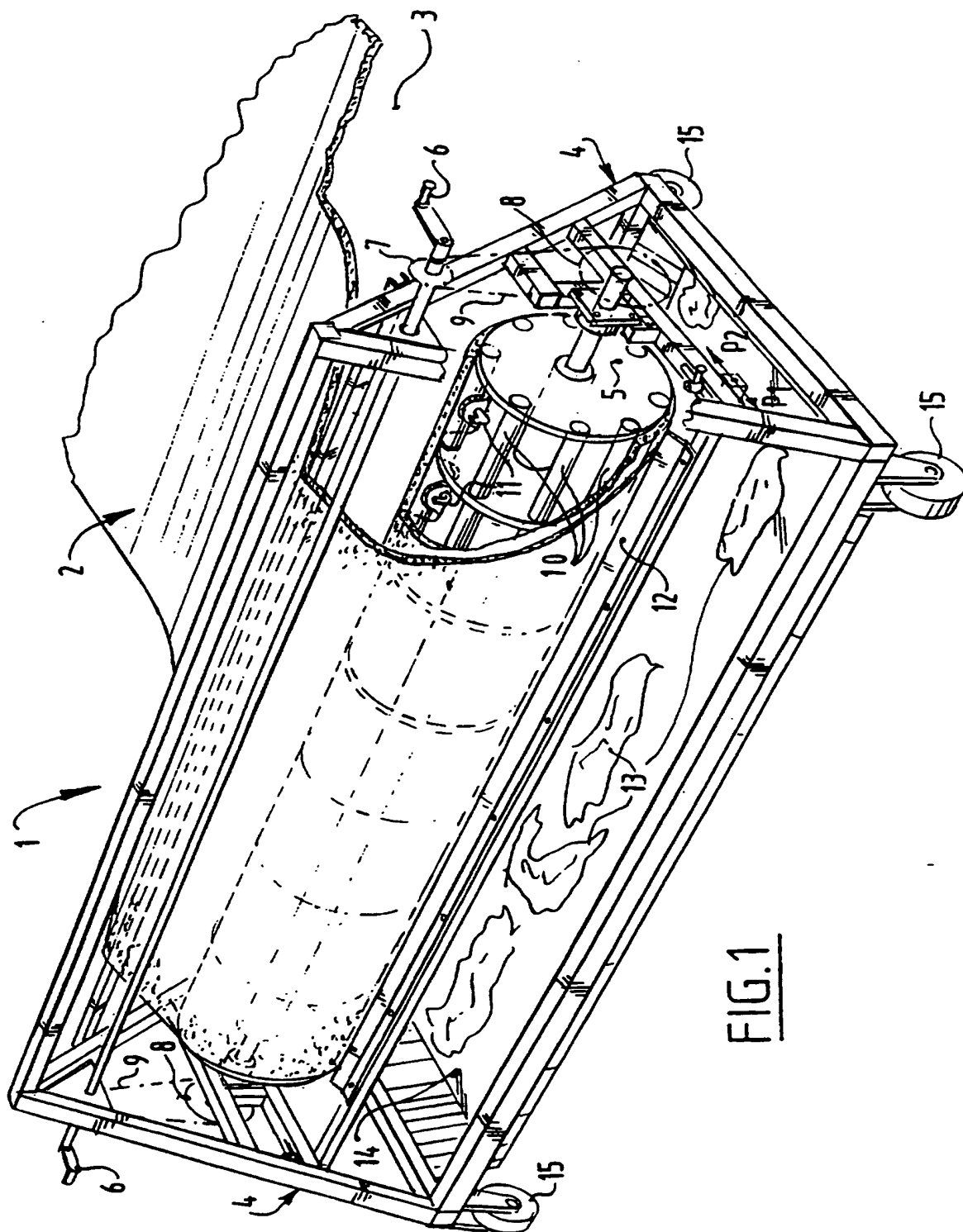
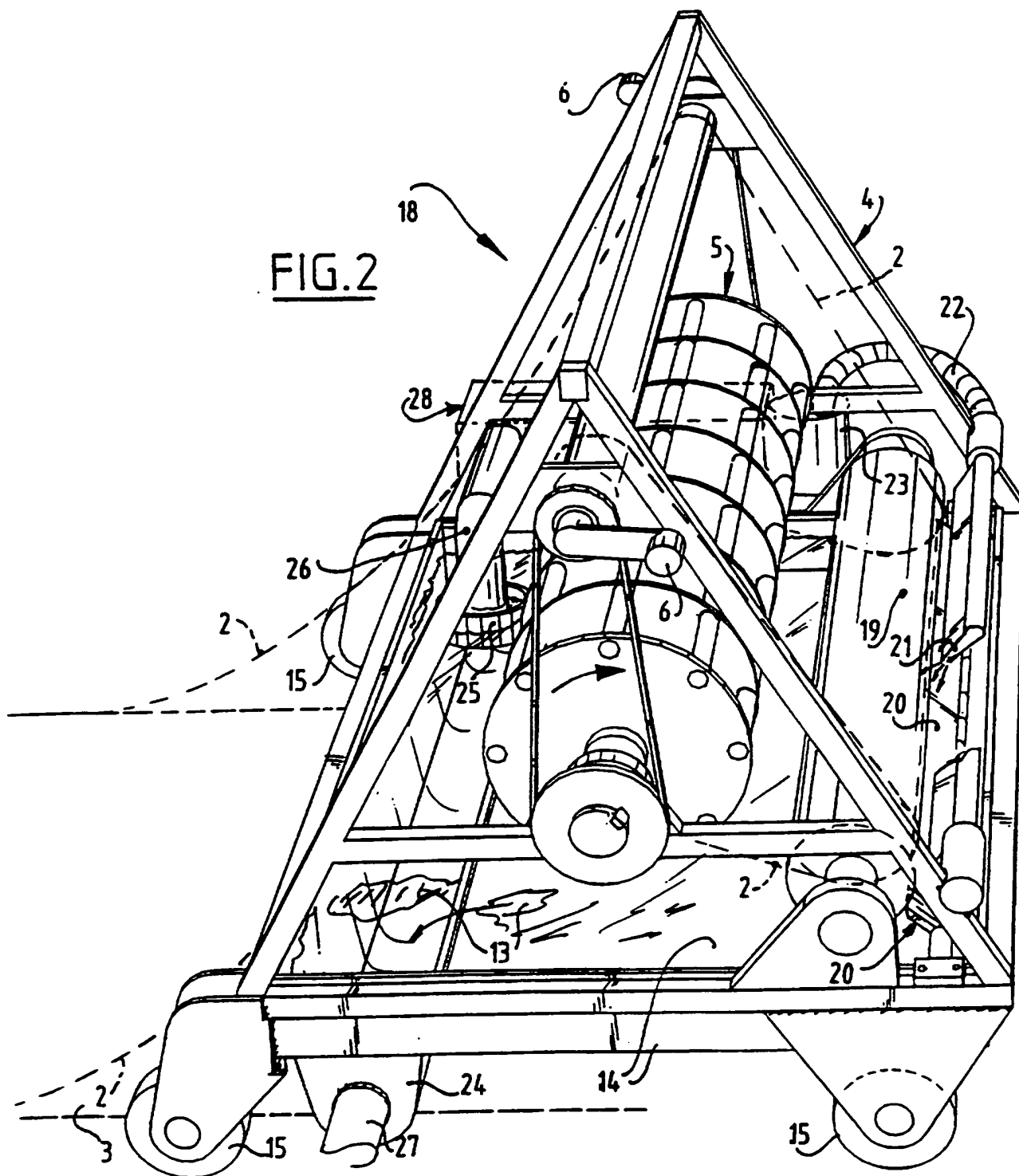


FIG. 1

2/2

FIG.2



INTERNATIONAL SEARCH REPORT

International Application No
PCT/NL 97/00078

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B08B17/04 B60S3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 B08B B60S A63C F16N E01C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 281 802 A (BURLEY) 4 August 1981 see abstract	1,6
Y	see column 3, line 4 - line 40; figures	10-12, 15,16
Y	--- EP 0 363 751 A (SUTTNER GMBH & CO. KG) 18 April 1990 see abstract see column 4, line 31 - column 6, line 32 see column 7, line 10 - line 25 see column 8, line 40 - line 54; figures	10-12, 15,16
A	---	1
X	US 3 998 564 A (SERLIN) 21 December 1976 see column 2, line 66 - column 3, line 61; figure 1 --- -/-	1,6,7

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 362 180 A (CANNING ET AL) 8 November 1994 see column 6, line 56 - column 7, line 5; figures 10-12	1
A	---	3,5,7
A	GB 2 201 660 A (ALL WEATHER SPORTS COVERS LIMITED) 7 September 1988 see abstract see page 2, line 22 - page 3, line 21 see page 7, line 6 - page 8, line 20; figures	1,15,16
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Information on patent family members

International Application No

PCT/NL 97/00078

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Application No: GB 0022260.4
Claims searched: all

Examiner: Joanne Pullen
Date of search: 26 February 2002

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Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.7): B65D, B67D, F16N

Other: Online: EPODOC, WPI, JAPIO.

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2037580 A (DANCO PLASTICS LIMITED) Figures 4-6, page 1 lines 57-67, page 2 lines 33-40	1-3, 6-9, 12 & 13
X	US 5988427 A (MOORE) Figures 1 and 4-6, column 4 lines 58-64.	1, 2, 4, 7, 10, 12 & 13
X	US 5620018 A (CARPENTER et al) Figures 1 and 2, column 2 lines 62-66, column 3 lines 12-28 and column 4 lines 38-49.	1-4, 6, 7, 10, 12 & 13
Y	US 5547312 A (SCHMITZ) Figures 7 and 8, column 3 lines 48-67.	1, 2, 4-7, 10, 12 & 13
Y	US 5516318 A (SAYLOR) Whole document.	1, 2, 4-7, 10, 12 & 13
X	US 2854049 A (WYLLIE) Whole document.	1-3, 6, 7, 12 & 13
Y	DE 19846929 A (SCHIMMEL) Abstract and figures.	1, 2, 4-7, 10, 12 & 13

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